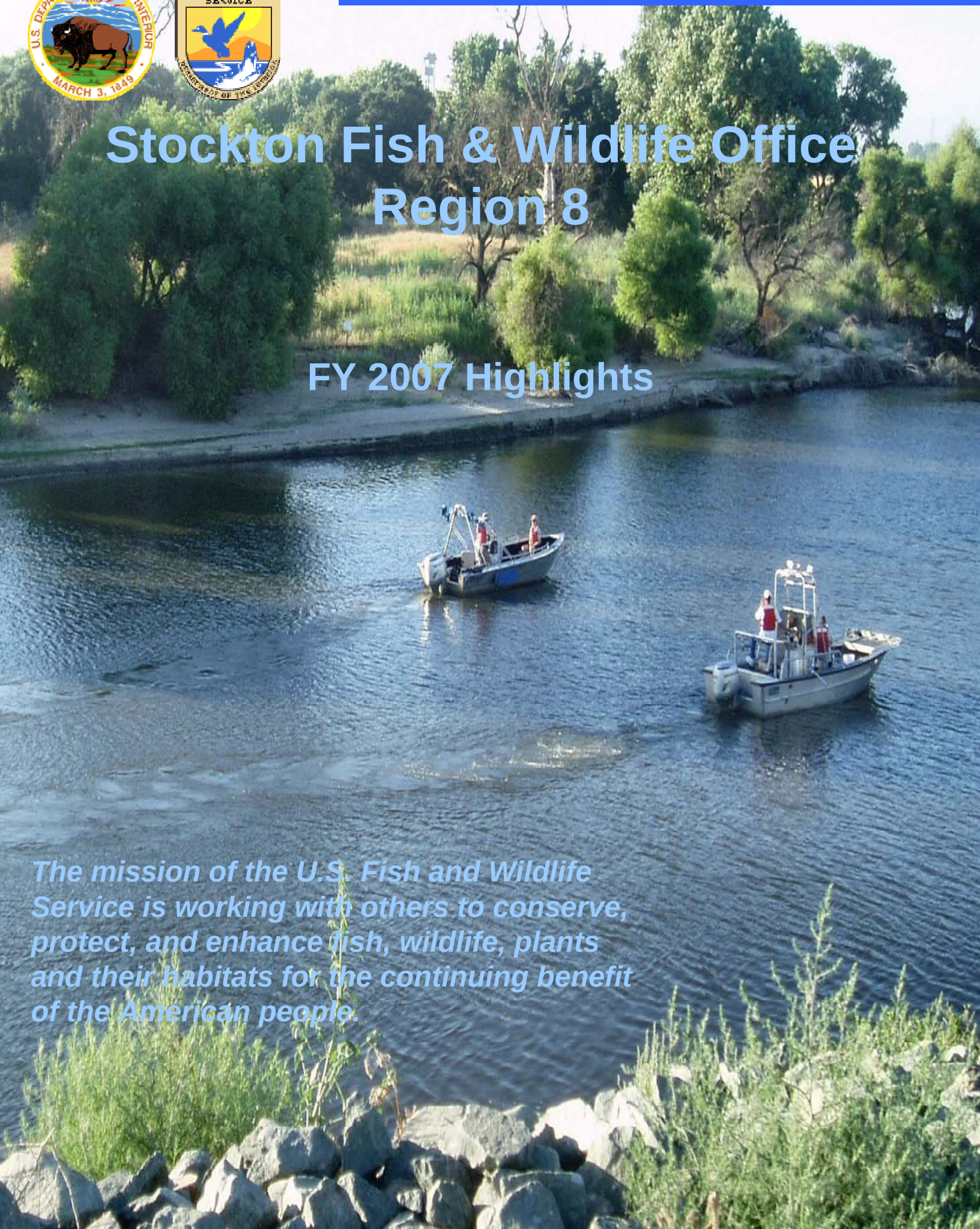
Stockton Fish & Wildlife Office
Region 8

FY 2007 Highlights



The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

It is my pleasure to welcome you to the first edition of the Stockton Fish and Wildlife Office Highlights Report. Through stories that are both engaging and enlightening you will learn about many of our accomplishments in 2007, and the people in this office that made it all possible. You will discover that we are a diverse group of dedicated people and that collaboration and cooperation are vital to our success. It is our intention to continue to assemble an annual highlights report each year to tell our story and further improve understanding and communication between us and our partners. Please let me know if you have suggestions for future issues. I am very grateful to the wonderful authors of these stories and especially to Gonzalo Castillo and Brian Oney who volunteered a significant amount of time to compile, edit and format them all. I hope you enjoy reading about our people and their work. We are very proud of them all.

Our work in the San Francisco Estuary and tributaries of the Sacramento and San Joaquin rivers is always challenging and full of unique opportunities. There is constant emphasis to stay relevant and current as we continue our work day to day. One way we do this as a team is through our Visioning process. We first came together as a team in 2002 to develop our office Vision. After five years had passed, we decided 2007 was a good time for a review of our Vision. So we held a retreat at Pardee Reservoir for all of our employees to spend the day re-evaluating our Vision and developing implementation priorities. This approach was so productive, that we are now planning to hold an annual retreat to revisit our Vision and implementation status each spring. Our office Vision is:

The Stockton Fish and Wildlife Office is an organization that promotes native self-sustaining ecosystems through leadership in anadromous fish restoration, fisheries research and monitoring, and non-native invasive species prevention, management, and control.

To achieve our objectives, we foster and value strong productive collaborations both internally and with peers, stakeholders, and the public.

Our work towards recovery and conservation of species and their habitats is governed by honesty and integrity and incorporates excellence in science, creativity, and flexibility.

As we strive to keep ourselves and our programs stimulated and vigorous, I hope you will join us in our efforts to restore, conserve and protect our aquatic resources.

Kim Webb
Project Leader
Stockton Fish and Wildlife Office

Stockton Fish and Wildlife Office employees at Pardee Reservoir retreat, spring 2007.

Reintroduction of Anadromous Fish above Crocker-Huffman Dam

The Anadromous Fish Restoration Program contracted with Dave Vogel of Natural Resource Scientists, Inc. to study the feasibility of reintroducing anadromous fish, particularly Chinook salmon, above the Crocker-Huffman Dam on the Merced River. The dam is a low head, diversion dam located at river mile 52 that blocks access to a 3-mile long river reach extending upstream to Merced Falls Dam. In previous years fish were able to access this reach by a fish ladder, however, in the early 1970s, the ladder was blocked by the California Department of Fish and Game (CDFG) with the completion of a spawning channel just downstream of the dam.

The study involved data collection to assess spawning habitat quality (e.g., cross-sectional water velocity profiles, pebble counts, substrate size and composition, and bank riparian habitat type), and examined the feasibility of screening the diversion canal at the dam, predation on juveniles, and the installation of a new fish ladder. The potential effect of Chinook salmon reintroduction on the two hatcheries just downstream of Crocker-Huffman Dam was also considered. The Merced River Hatchery, operated by CDFG, is the only hatchery that raises San Joaquin basin Chinook salmon. The Calaveras Trout Farm is a privately owned commercial hatchery that raises brown, brook and rainbow trout, and white sturgeon. If anadromous fish were reintroduced above the dam, pathogens transmitted through eggs and carcasses could adversely affect these hatcheries.

It was found that the lower 1.5 miles of the reach above Crocker-Huffman Dam was not suitable for spawning and rearing. Flows were unsuitably low, predation on juveniles near the dam could be a problem, and the substrate in this area was mostly silt. Also, screening of the diversion canal would be expensive. Only the upper 1.5 miles contained conditions that would be suitable for spawning and rearing, having a substrate made up of mostly cobble and small boulders, and with adequate flows.

The final report, A Feasibility Investigation of Reintroduction of Anadromous Salmonids above Crocker-Huffman Dam on the Merced River, was completed December 2007. The report can be found on-line at http://www.delta.dfg.ca.gov/afrp/documents/FinalCrockerHuffmanReport

Rick Burmester, USFWS, AFRP Lodi

-USFWS
Crocker-Huffman Dam

Fisheries Management Planning For the San Joaquin River Restoration Program

The purpose of the San Joaquin River Restoration Program (SJRRP), which was initiated in late 2006, is to implement the settlement between the Natural Resources Defense Council, U.S. Departments of Interior and Commerce, and the Friant Water Users Authority over an 18-year lawsuit regarding long-term water service contracts. The SJRRP has a goal to restore and maintain fish populations, particularly spring-run Chinook salmon, in good condition in the San Joaquin River below Friant Dam. The U.S. Fish and Wildlife Service is the lead agency charged with restoring the fish populations and is working with the U.S. Bureau of Reclamation, California Department of Fish and Game, California Department of Water Resources, and National Marine Fisheries Service to develop a fisheries management plan. The Fisheries Management Work Group (FMWG) has

completed a document titled: *Conceptual Models of Stressors and Limiting Factors for San Joaquin River Chinook Salmon.* As described in this document, the restoration of a spring-run Chinook salmon population in the San Joaquin River will be a challenging task. The historical population was extirpated in 1949 when portions of the river were dewatered. In addition, the 150 miles of river to be restored have been highly degraded by flow diversions, loss of floodplain habitats due to agricultural conversion, diversion structures that block fish passage, in-river gravel mining, and non-native invasive species.
The FMWG will be working hard to produce a fisheries management plan, which will describe an adaptive management strategy to implement restoration and flow management to ensure that the SJRRP's goals are achieved while simultaneously learning from all restoration and flow management actions. *Carl Mesick, AFRP - Lodi.*

-USFWS
Dewatered Section of the San Joaquin River below Sack Dam

Lover's Leap Salmon Habitat Restoration Completed on the Stanislaus River

The U.S. Fish and Wildlife Service in partnership with the California Department of Water Resources added over 21,000 tons of spawning gravel to California's Stanislaus River, to improve degraded spawning habitat for fall-run Chinook salmon (*Oncorhynchus tshawytscha*) and threatened steelhead (*O. mykiss*). The project was funded to further the Central Valley Project Improvement Act goal of doubling the natural production of anadromous fish. Twenty-five new riffles were constructed and eight existing riffles were augmented with clean gravel. An additional 189 boulders were placed both in the channel and on the floodplain to improve habitat heterogeneity, and provide feeding stations. A variety of native trees were planted including cottonwood, willow, oak and poplar. Construction was completed by Dennis Hood of KDH Environmental Services. Additional coordination and assistance was provided by the U.S. Army Corps of Engineers and the California Department of Fish and Game. The project was managed by fisheries biologist J.D. Wikert of the Service's Anadromous Fish Restoration Program. *J.D. Wikert, USFWS, AFRP- Lodi.*

-USFWS
Restored spawning gravel on the Stanislaus River

USFWS National Fish Passage Program

Many accomplishments were made on behalf of the USFWS National Fish Passage Program by representatives of the AFRP serving as Regional Fish Passage Coordinator for Region 8.
Accomplishments of note include: Assisting the Washington office in developing of a new allocation methodology for the National Fish Passage Program; expanding Stockton FWO fish passage responsibility to include North Bay rivers and associated tributaries (e.g. Petaluma and Napa); initiating a new partnership and effort with Nevada Division of Wildlife to create a fish passage forum for Nevada; Continue to further develop and serve as a technical lead for the California Fish Passage Forum; and participating in new fish passage workgroups statewide, including Fish PAC and Calfish fish data workgroups. Partners of note include: CDFG, CDWR, CalTrans, NOAA, USFS, 5C-

Net, Coastal Conservancy, Salmonid Restoration Federation, PSMFC, and FEMA. *David Hu, AFRP-Lodi*.

Dreissenid mussels: Invasion into our region.

On January 6, 2007 the invasive mussel *Dreissena burgensis*, or quagga mussel, was discovered in the waters of Lake Mead. Since the discovery, the mussel has been identified in Lake Havasu, San Diego County and Riverside County California reservoirs, and throughout the Colorado River Aqueduct. The Aquatic Nuisance Species (ANS) Program has played a significant role in the response to this discovery. The program has been part of the California Incident Command System (ICS). Personnel from the California Department of Fish and Game (DFG), the California Department of Water Resources (DWR), other US Fish and Wildlife Service offices, and the Nevada Division of Wildlife (NDOW) were trained by Jeffrey Herod (former Aquatic Nuisance Species Coordinator for Region 8) on search and identification techniques for the dreissenid mussel. In total, 13 presentations have been given to groups including the Columbia River Basin and Colorado River Basin 100th Meridian Teams, the National Park Service, the Lake Tahoe Aquatic Invasive Species Workgroup, the US Forest Service, and others. The ANS Program has also acted as a liaison to the Water 2025 Initiative Team. The program continues to support the California DFG, DWR, and NDOW in their efforts to respond to the dreissenid mussel invasion. Upcoming in 2008, Portland State University will begin to monitor for dreissenid mussel veligers in California and Nevada via a grant from the ANS Program. *Jonathan Thompson FWS ANSP/NISP - Stockton.*

-USFWS

Quagga mussel

The Disappearance of the Chinese Mitten Crab

From the late 1990's to the early 2000's the Chinese mitten crab, *Eriocheir sinensis*, was easy to find within the Sacramento-San Joaquin Estuary. A non-native invasive species, the catadromous crab is native to the South China Sea and can migrate great distances upstream into freshwater. It has been a nuisance to recreational anglers, fish salvage operations, levees, and the ecology of Sacramento-San Joaquin Estuary and its tributaries. It became an issue of such importance that the National Aquatic Nuisance Species (ANS) Task Force developed the Chinese Mitten Crab Working Group, which, under the coordination of the STFWO ANS Program, drafted a National Management plan for the genus *Eriocheir*. Monitoring for the juvenile life stage of the Chinese mitten crab continues to be an annual project for STFWO. In 2007, technician Jon Thompson led the monitoring for the species from July to November at sites within the Don Edwards National Wildlife Refuge (NWR), San Joaquin River NWR, the Antioch Dunes NWR, the San Pablo Bay NWR, the Cosumnes River Preserve, the Woodbridge Golf and Country Club, the Santa Clara Valley Water District, the Sonoma County Water District, the City of Napa Parks and Recreation, and Binky's Marina. There were no mitten crabs observed at these sites in the passive habitat traps or in the areas around the traps. In addition, there were no reports of the Chinese mitten crab from fishermen or government agencies in 2007. The Chinese mitten crab has become rare on the west coast. Currently, an increasing number of captures of the Chinese mitten crab has caused alarm on the east coast. Monitoring will

continue on the west coast and many of the techniques developed through partnerships will be shared with our new partners on the east coast in areas such as the Chesapeake Bay. *Jonathan Thompson FWS ANSP Stockton*

-USFWS
Chinese mitten crab

HACCP: Ethical Responsibility in Natural Resources Management

Hazard Analysis and Critical Control Point for Natural Resources Management (HACCP-NRM) planning is a tool for reducing the risk of spreading invasive species during management activities. In 2007, the Non-native Invasive Species and the Aquatic Nuisance Species Program's staff Denise Walther, Louanne McMartin, Jeffrey Herod and Jonathan Thompson successfully increased awareness of invasive species issues and appropriate use of HACCP-NRM. Poster presentations were made at the 5th New Zealand Mudsnail In The Western USA Conference and the 8th Biennial State of the San Francisco Estuary Conference. Presentations were made at the Southern California Academy of Science Annual Meeting 2007 and at the Fourteenth Annual Meeting of the California Aquatic Bioassessment Workgroup. Additionally, two training events were held in 2007. On a fall day in the first training, staff of the Interagency Ecological Program (IEP) participated in HACCP training in Stockton, California. In the second training, staff representing various FWS programs were trained at the Fish and Wildlife Office in Arcata, California. In 2007, the number of HACCP-NRM plans for California that are posted to the www.haccp-nrm.gov website increased from 5 to 16. The USFWS Red Bluff, Stockton, and Arcata offices all increased the number of HACCP-NRM plans with a majority of their activities now covered by a HACCP-NRM plan. *Jonathan Thompson FWS ANSP/NISP - Stockton*

- USFWS
Field sampling: how non-natives can be moved

Work Group Tackles Transcontinental Introduction of Non-Native Invasive Water Snakes Into California

The watersnakes (*Nerodia*) are a group of semi-aquatic snakes native to North America east of the Rocky Mountains. Recently, two populations of Florida watersnakes (*Nerodia fasciata pictiventris*) have become established in California, and individuals of other species have been captured from the wild. Since their discovery in the northern Sacramento area in 1992, more than 100 Florida watersnakes, including numerous gravid females, have been captured. Thus far, this population is confined to tributaries of the American River, which provides connectivity with much of northern California. In southern California, a population is known from Harbor Park Lake, a semi-isolated urban lake draining to the Pacific Ocean. These are worrisome introductions because, as a group, watersnakes share numerous traits with other invasive aquatic species. They have a wide breadth of physiological tolerances, large native distributional ranges, and occur in all types of freshwater systems. Watersnakes can be highly fecund, are viviparous, and readily disperse. They are generalist predators that co-evolved with many of the vertebrates (invasive species) now inhabiting western waters. As a result, introduced *Nerodia* pose potential threats to native wildlife and, if left uncontrolled, may undermine endangered species recovery or habitat restoration efforts,

among other possible outcomes. To address issues surrounding the management, eradication, or control of *Nerodia* populations in the western states, the multi-agency *Nerodia* Working Group was formed by the STFWO. The group consists of federal and state agencies, academia and consulting firms (U.S. Fish & Wildlife Service, Department of Fish and Game, U.S. Geological Survey, University of Toronto, ECORP Consulting, EPG, Inc). Short-term goals include total eradication of the southern California population, advocating for the listing of *Nerodia* as a restricted genus under Section 671 of Title 14 of California's Code of Regulations, and conducting outreach to the pet trade and other groups to raise awareness about these species. *Louanne McMartin, FWS /NISP - Stockton; Eric W. Stitt, EPG, Inc.; Peter S. Balfour, ECORP Consulting, Inc.*

EPG, Inc
Southern watersnakes from the Folsom, California area

Acoustic Tagging of Late Fall Chinook Salmon at the Coleman National Fish Hatchery.

In December 2006 and January 2007 with the collaboration of National Marine Fisheries Service and University of California - Davis, the Stockton Fish and Wildlife Office (STFWO) surgically implanted Vemco acoustic tags in a total of 150 late fall Chinook salmon from Coleman National Fish Hatchery.

The goals of this study were 1) to estimate survival of late fall Chinook salmon through the delta with the Delta Cross Channel (DCC) gates in Walnut Grove, California in the open and closed positions and 2) to estimate what portion of fish entered the interior delta under both DCC gate conditions. These fish (70 in December and 80 in January) were transported downstream, held in net pens for 24 hours for acclimation and released into the Sacramento River near Sacramento, California in groups of 17 fish, every 6 hours over a 24 hour period. The results of this study were presented at the 2007 National American Fisheries Society Meeting in San Francisco, California. *Lori Wichman, DJFMP-Stockton.*

-UC Davis
Deploying a transponder

2007 VAMP Acoustic Station Monitoring

In a second acoustic salmon tagging project of 2007, the STFWO collaborated with personnel from the U.S. Geological Survey and the California Department of Fish and Game in the tagging of 970 juvenile (approx. 100 mm) Fall-run Chinook salmon cultured by the Merced River Hatchery.

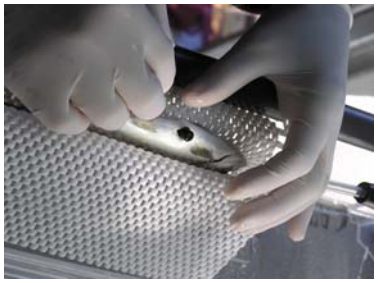
The objective of the study was to quantify Chinook salmon survival along individual river segments between Durham Ferry, Mossdale, Head of Old River, Bowman Road (near Dos Reis), and Stockton. Acoustic tags were purchased from Hydroacoustic Technology Inc.
After surgical implantation, fish were released at four sites on the San Joaquin River between Durham Ferry and Stockton. Dummy tags were implanted in 20 fish that were held at the Merced River Hatchery for 7 to 14 days to assess tagging and handling stress.

At all release sites fish were acclimated to river temperature by holding them in tubs and slowly adding river water to bring the water temperature in the tubs close to the river water temperature (+/-2 C) . Fish were held in the tubs for a minimum of one hour prior to release.
To evaluate health effects associated with the tag and release process, dummy

tagged fish were held at two release sites for 48 hours, then assessed for condition. Ten acoustic receivers were deployed in the southern and central Delta to detect tagged fish as they migrated through the Delta. The receivers electronically logged the presence of an acoustically tagged fish as it passed the receiver site.

The STFWO maintained four of the ten acoustic receivers located throughout the Delta. The receivers were monitored between May 7 and May 21 at three days per week. Maintenance of the receivers consisted of downloading the data, changing out the receiver and changing the batteries. This required the use of a boat and some safety equipment, including a hardhat, gloves and a safety harness.

The results of this study can be accessed on the San Joaquin River Group Authority web site (http://www.sjrg.org/technicalreport/2007/cover.pdf). *Mike Marshall, Jack Ingram, DJFMP - Stockton.*

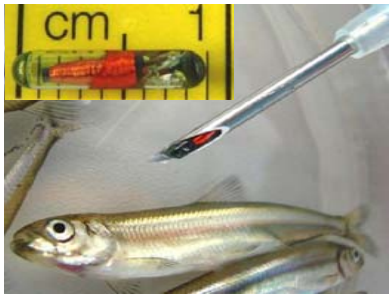


-UC Davis

Implanting a tag

First PIT tagging Experiment on Delta Smelt

Passive integrated transponder (PIT) tags have been extensively utilized in experiments over the years, enabling identification of individual fish. This first PIT tagging test on threatened delta smelt (*Hypomesus transpacificus*) was supported by the Interagency Ecological Program (IEP) and the UC Davis Fish Conservation and Culture Laboratory (FCCL). Tagging was conducted in spring 2007 at the FCCL, adjacent to the Skinner Fish Facility (State Water Project, south Delta). STFWO fish biologist Gonzalo Castillo developed and coordinated this study in close collaboration with staff from the UC Davis FCCL, the Department of Fish and Game, and the Department of Water Resources. Field experiments were conducted to provide preliminary estimates of the percent of delta smelt recaptured at the Skinner Fish Facility and/or detected at the two Delta sites where salvaged fish are regularly released. Releases of 383 delta smelt were conducted on two successive nights at the intake channel (IC) leading to the fish salvage facility and the trash rack (TR) located in front of the primary louvers in the salvage facility. About 38% of the fish released at the TR were accounted for, compared to 34% of fish released at the IC (i.e., accounted either as observed delta smelt at the salvage facility or detected PIT tags at Delta release sites). No further tags were recovered after 24 hours following each release. Provided that survival of tagged fish improves to levels typically observed in non-tagged control fish (> 95% over 30 days), PIT tags could be a useful tool in future salvage efficiency studies. *Gonzalo Castillo, USFWS - Stockton.*



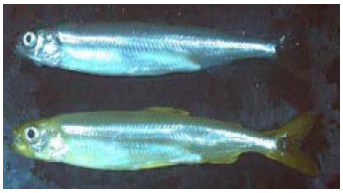
-CDFG

PIT tag and PIT tag implanter used on delta smelt

Entrainment Estimates for Threatened Delta Smelt

The State Water Project (SWP) and the adjacent Central Valley Project (CVP) export a significant fraction of Delta water year-round for agricultural and urban use. Both water projects include fish salvage facilities to reduce entrainment losses of juvenile and adult fish in the southern Delta. A pilot study was funded by the CALFED Science Program in 2007 to develop mark-recapture methods and to quantify the magnitude of entrainment losses of juvenile and adult delta smelt (*Hypomesus*

transpacificus) at the SWP in the southern Delta. STFWO fish biologist Gonzalo Castillo, is leading this project in collaboration with staff from the Fish Conservation and Culture Laboratory (University of California, Davis) and the Department of Fish and Game, Stockton. Marking methods to be developed in this project will be used to differentiate cultured and wild delta smelt. Mark-recapture results will provide initial estimates of entrainment losses not accounted for in salvage statistics of delta smelt at the SWP, including pre-screen loss at Clifton Court Forebay and salvage efficiency at the Skinner Fish Facility. *Gonzalo Castillo, USFWS - Stockton.*



-CDFG
Calcein marked (bottom) and unmarked (top) delta smelt

Cooperation Makes for Smooth Sailing at Work

The Delta Juvenile Fish Monitoring Program at the Stockton Fish and Wildlife Office (STFWO) continues to keep boat operations running smoothly and safely, thanks to the Department of Interior's Motorboat Operators Certification Courses (MOCC). The STFWO has two MOCC instructors, Ron Hagins and Jackie Hagen. Region 1 and Region 8 MOCCs are scheduled by the Region 1 Watercraft Safety Coordinator, Aaron Garcia and Boating Safety coordinators from UC Davis and NOAA Fisheries. This cooperation allows employees from this office, and partner agencies to receive the instruction and skills vital to carrying out their Station's on-water work assignments. The STFWO has been involved with the MOCC since 1995, and has seen over 50 employees receive certification. MOCCs for the FYO7 sent Jackie Hagen to Red Bluff, CA, and Ron Hagins to Astoria, OR and Orofino, ID. *Jackie Hagen, DJFMP-Stockton.*

-USFWS
STFWO crew conducting kodiak trawl, Sacramento River

R Workshops held at Stockton Office

The statistics and graphics programming language, R, has been selected by training staff at the National Conservation Training Center (NCTC) as the package to be used for their statistics courses. R is freely available, open source (meaning folks can look inside the program to see most, maybe all, of the underlying code), and very widely used. A worldwide network of users has contributed "packages" in R designed for particular applications, including ecological modeling and fisheries science. Ken Newman, mathematical statistician, organized three hands-on workshops on R at the Stockton office for USFWS and CDFG staff in 2007. Two of the workshops were an introduction to using R, learning how to read data into R, how to manipulate and analyze the data, and produce graphics for documents. The third workshop was on the use of R for exploratory and graphical data analysis. A fourth workshop is planned in 2008 on the use of R for analyzing data using models: linear and nonlinear regression, generalized linear models, and generalized additive models. *Ken Newman, USFWS-Stockton*

-CDFG
Setting up R workshop in Stockton office

Stockton Office Teaches Fish Identification

The Delta Juvenile Fishes Monitoring Program (DJFMP) at the Stockton, California office of the US Fish & Wildlife Service has been sampling the Sacramento and San Joaquin rivers, the delta and bay since the 1970's for juvenile fish. Due to the large number of native and non-native fish species in this system, accurate identification of these fish has been identified as a high priority by the USFWS. Late in 2001, the DJFMP hired a quality assessment/quality control (QA/QC) biologist for fish identification with responsibilities including teaching fish ID to the field crew and checking fish ID in the field.

The Stockton office has developed a fish ID manual including characteristics and photos of all native and non-native freshwater species found throughout the estuary including many of the marine species. The QA/QC biologist also maintains a teaching collection of preserved fishes for use in a fish ID class, which is taught three times a year. The day long fish ID class includes a half day lecture followed by lab work. This year's attendance has included staff from our partner agency the California Department of Fish and Game. *John Pedretti, DJFMP-Stockton.*

-USFWS
Identifying juvenile fish

Partnership in *Microcystis* sampling throughout Bay-Delta System

During June through October 2007, Ron Hagins, Heather Webb, Jen Messineo, and Jerrica Lewis (Stockton Fish and Wildlife Office – Delta Juvenile Fish Monitoring Program) assisted Peggy Lehman (Department of Water Resources) and University of California - Davis volunteers with the collection of the toxic blue-green algae, *Microcystis*. *Microcystis* occurs naturally world-wide in low concentrations; however, under optimal conditions (such as long sunny days and calm weather) these toxic blooms can potentially affect water quality as well as human and animal health. Sampling took place throughout the eastern portion of San Francisco Bay and southern Sacramento-San Joaquin delta focusing on areas with historically high blooms. Sampling methods consisted of zooplankton and algae trawling as well as water quality and clarity sampling. Future sampling efforts will continue in order to learn more about these highly toxic blooms and their effects throughout the Sacramento-San Joaquin Delta and Bay area. Results from this study will keep city and county officials informed so decisions can be made that directly affect public health, such as beach closures and drinking water hazards. *Jerrica Lewis and Heather Webb, DJFMP-Stockton*

-USFWS
Sampling *Microcystis*

Freshwater Whale Experts

On Sunday May 20, 2007, the director of the California Department of Fish and Game (DFG), Ryan Broderick contacted USFWS California/Nevada Operations Manager Steve Thompson requesting help to guide two wayward humpback whales back to the Pacific Ocean. Within hours, the Stockton Fish and Wildlife Office had eight employees and four boats ready to assist before operations were called off for the night. But this was just the first of 10 days of a once in a lifetime opportunity for inland biologists, technicians, small craft operators and

others to participate in a truly unique event.

Between May 20th and May 29th the Stockton office coordinated with local USFWS offices to supply 38 staff members and 6 vessels to the whale rescue efforts led by the National Marine Fisheries Service and DFG. Tasks included clanging on pipes underwater in an attempt to "herd" the whales downstream and back to the Pacific Ocean, and maintaining a barrier around the whales to prevent commercial and pleasure craft from getting too close to the wayward mammals. Throughout this event Service staff made themselves available, often with little notice on weekends and holidays in order to be involved with this once in a lifetime experience. *Paul Cadrett, DJFMP-Stockton.*
- USFWS

-USFWS
A whale tail

-USFWS
Delta and Dawn making waves

-USFWS
Three USFWS vessels on whale patrol

Bring Your Child To Work Day

Last April in celebration of Earth Day, the U.S. Fish and Wildlife Service, California and Nevada Operations Office (CNO) began a new tradition of the Bring Your Child to Work Day Event. CNO Service employees were invited to bring their children on a field trip to Stone Lakes National Wildlife Refuge. Thereafter, they had a picnic and beach seine demonstration located at the confluence of the Sacramento and American Rivers in Discovery Park. This was followed by the children accompanying their parents back to their respective work stations for an afternoon of job shadowing.

The Stockton Fish and Wildlife Office led the Discovery Park adventure by first educating parents and children about the boat and equipment used to catch fish and the reasons we are involved in these activities. Boat operator Jackie Hagen gave a short talk and answered the children's questions about seining and the fish that were caught. Stockton FWO's research vessel "Silverside" was anchored to the side of the boat ramp with a midwater trawl behind it and boat operator Bill Powell and technician Jonathan Thompson gave the beach seining demonstration. The children learned how data was collected and how it was used to gauge the health of the Delta. As the fish were seined, the children crowded around to touch and identify silversides, Sacramento pike minnows, suckers, salmon and bullfrog tadpoles. Fishery biologist Louanne McMartin set up aquaria containing an assortment of small fish and bullfrog tadpoles that had been seined from the river so children could view the fish and bullfrog tadpole swimming movements. Fun was had by all and at the end of the day the children received a certificate of participation from CNO Deputy Manager Ken McDermond and a "goodie bag" full of wildlife stickers, wildlife oriented games and a "bird facts" tee shirt. Plans are in the making for the second Bring Your Child to Work Day Event in April of 2008. *Louanne McMartin – FWS NISP- Stockton.*

-USFWS
Bill Powell on the "Silverside"

-USFWS

A day enjoyed by everyone at Discovery Park.

-USFWS

Kim Webb with child – Bird identification. Stone Lakes NWR

Stockton FWO Receives CALFED Science Awards

The Stockton Fish and Wildlife Office was awarded two CALFED Science grants in response to the 2006 Proposal Solicitation Process (PSP). The proposals selected for funding were entitled "Estimating Juvenile Chinook Salmon Spring and Winter run Abundance at Chipps Island" and "Pilot Mark-Recapture Study to Estimate Delta Smelt Pre-screen Loss and Salvage Efficiency".
Another project had been funded as a result of the previous, 2004, CALFED Science PSP. It is entitled "Review of four juvenile coded wire tag experiments conducted in the Delta."

The project to estimate spring and winter run abundance will take DNA tissue from juvenile salmon caught in the western Delta and apply estimates of trawl efficiency to estimate the abundance of these races. A total of up to 3000 DNA samples will be taken each year. The project will be completed by September 2010.

The project on delta smelt is described in more detail elsewhere in this station report. It will make use of cultured delta smelt to provide preliminary estimates of delta smelt entrainment at the State Water Project in the southern Delta. Laboratory experiments to develop marking methods will be conducted in winter-Spring 2008. Mark recapture experiments are scheduled for late spring 2008 and winter-spring 2009.

The project on the four coded wire tag experiments in the Delta is near completion. Ken Newman, a statistician on staff, reviewed the study designs and data analyses, and conducted alternative modeling. The results of Bayesian and non-Bayesian modeling were compared with the previous approaches. The modeling in general supported prior conclusions on the role of the Delta Cross Channel gates, Central Valley and State Water Project exports, San Joaquin River flows and a barrier at the head of Old River on juvenile salmon survival through the Delta. Survival estimated from these coded wire tag experiments in the Delta tended to have large sampling variation due to low recovery probabilities, and the environmental variation between releases, both within and between years. The final report from the project will be submitted to CALFED Science by March 2008.
Pat Brandes, Gonzalo Castillo and Ken Newman, USFWS - Stockton

-USFWS

Coded wire nose tag (above) and juvenile Chinook salmon

-USFWS

The trawling vessel at Chipps Island

-USGS

Clifton Court Forebay- Site of delta smelt mark-recapture tests